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The Sources and Methods for the Annual Estimates of State Personal Income and Disposable Personal Income, 1997-2002

This text, together with the text of the following sections, describes the sources of the data and the methods that were used to prepare the annual estimates of the components of personal income and disposable personal income for states for 1997-2002./1/

The introduction describes the relationship between the national estimates of personal income and the state estimates, it defines the essential terms used, and it explains the major differences between the definitions and classifications used in the national estimates and those used in the state estimates. This introduction also includes general information about the sources of the data that are used to prepare the estimates and the place of measurement of the source data. Additionally, it includes information about the procedure used to integrate the national and the state estimates--the allocation procedure--and a brief description of the procedures used to prepare estimates for which direct source data for some years are not available--the interpolation and extrapolation procedures.

After this introduction, the sections of text provide specific information about the sources and methods used to prepare the estimates of each component of personal income, of the residence adjustment, and of disposable personal income.

Introduction

The state estimates of personal income and disposable personal income are designed to be conceptually and statistically consistent with the national estimates of personal income and disposable personal income; as part of the preparation of the state estimates, the national

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1. For information about the methodology used to prepare the estimates for earlier years, call (202) 606-5360, or e-mail reis.remd@bea.gov.

estimates are disaggregated to states./2/ As a result, the definitions that are used for the components of personal and disposable personal income for the state estimates are essentially the same as those used for the national estimates./3/

State personal income is defined as the income received by, or on behalf of, all the residents of the state from all sources. Personal income is the sum of wage and salary disbursements, supplements to wages and salaries, proprietors' income with inventory valuation and capital consumption adjustments, rental income of persons with capital consumption adjustment, personal dividend income, personal interest income, and personal current transfer receipts to persons, less contributions for government social insurance.

Persons consists of individuals, nonprofit institutions that serve individuals, private noninsured welfare funds, and private trust funds. In this text, the last three are referred to as "quasi-individuals." The state-level source data used to prepare the estimates of some components of personal income received by individuals are not the most appropriate source data for estimating the income received by quasi-individuals.

State per capita personal income is calculated as the personal income of the residents of the state divided by the population of the state as of July 1.

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2. At the national level, personal income and disposable personal income are parts of the personal income and outlay account, which is one of seven summary accounts that compose the national income and product accounts.

Of the aggregations in the personal income and outlay account, only personal income, disposable personal income, and personal current tax receipts are estimated for states. In addition, BEA prepares estimates of gross state product (GSP), which correspond to gross domestic product (GDP); GSP and state personal income share the following elements of personal income: Wage and salary disbursements, supplements to wages and salaries, proprietors' income, and rental income of persons.

For information about the relationships among GDP, GSP, and state personal income, see Howard L. Freidenberg and Richard M. Beemiller, "Comprehensive Revision of Gross State Product by Industry, 1977-94," Survey of Current Business 78 (June 1997): 15-41.

3. The national estimates may temporarily differ from the state estimates because of different estimating schedules. The state estimates of wages and salaries and farm proprietors' income incorporate source data that are not available when the national estimates are prepared; these data are later incorporated into the national estimates when they are revised.

Disposable personal income is the income that is available to persons for spending and saving. It is calculated as personal income less the sum of personal current tax receipts to Federal, state, and local governments.

State per capita disposable personal income is calculated as the disposable personal income of the residents of the state divided by the population of the state as of July 1.

Differences in geographic scope and in classifications between the national and the state estimates

The geographic scope of the state estimates for several components of personal income differs from the scope of the national estimates. The state estimates of wage and salary disbursements and of supplements to wages and salaries consist mainly of the labor earnings of persons who reside and who work in the United States. However, the national estimates of these components also include the earnings of Federal civilian and military personnel who are employed abroad. In addition, the national estimates include--and the state estimates exclude--the dividends and interest received by government employee retirement plans on behalf of Federal civilian and military personnel who are stationed abroad.

The estimates in the national rest-of-the-world sector are either classified differently in or are omitted from the state estimates. The adjustments to the estimates of the wages and salaries disbursed by domestic industries to include the wages and salaries of U.S. residents who commute to work in Canada and to exclude the wages and salaries of Canadian and Mexican residents who commute to work in the United States are classified in the residence adjustments in the state estimates./4/ In addition, in the state estimates, the wages and salaries

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4. The residence adjustments are mainly estimates of the net inflows of the labor earnings of interstate commuters.

The state estimates of wages by place of work, like the national estimates of wages for domestic industries, exclude the wages of the U.S.-resident border workers and include the wages of the foreign-resident border workers.

of U.S. residents who are employed by international organizations and by foreign embassies and consulates in the United States are classified in an "industry" called "other." The estimates in the national rest-of-the-world sector that are omitted from the state estimates are of the wages and salaries of (1) U.S. residents other than federal personnel working temporarily (for 1 year or less) abroad, (2) foreign residents working temporarily in the U.S., and (3) foreign students enrolled in U.S. colleges and universities.

Sources of the data

The state estimates of personal income are primarily based on administrative-records data and on data from censuses or from similar surveys.

The data from administrative records may originate either from the recipients of the income or from the source of the income. These data are a byproduct of the administration of various Federal and state government programs. The most important sources of these data are as follows: The state unemployment insurance programs of the Employment and Training Administration, U.S. Department of Labor; the social insurance programs of the Centers for Medicare and Medicaid Services(CMS, formerly the Health Care Financing Administration), U.S. Department of Health and Human Services, and of the Social Security Administration; the Federal income tax program of the Internal Revenue Service, U.S. Department of the Treasury; the veterans benefit programs of the U.S. Department of Veterans Affairs; and the military payroll systems of the U.S. Department of Defense./5/

The data from censuses are mainly collected from the recipients of the income. The most important sources of census data for the state estimates are the census of agriculture, which is conducted by the U.S. Department of Agriculture (USDA), and the census of population and housing, which is conducted by the Bureau of the Census, U.S. Department of Commerce.

5. The data from the state unemployment insurance programs are collected by the various state employment security agencies and are assembled and supplied by the U.S. Bureau of

Some of the estimates are based on data from other sources. For example, the USDA's national and state estimates of the income of all farms constitute the principal basis for BEA's national and state estimates of farm proprietors' income. The USDA uses sample surveys, along with census data and administrative-records data, to derive its estimates.

Using administrative records data and Census data to measure income as defined in the national income and product accounts has both advantages and disadvantages. By using these data, BEA can prepare detailed annual estimates of personal income for the Nation and for states at a relatively low cost and without increasing the reporting burden on businesses and households. However, because the source data often do not precisely "match" the series that is being estimated, they must be adjusted to compensate for differences in definitions, in coverage, and in geographic detail.

Geographic characteristics of the source data

Personal income, by definition, is a measure of the income received by persons, and the estimates of state personal income should reflect the state of the residence of the income recipients. However, most of the source data that are used to prepare the estimates of some of the components of personal income are reported and recorded by the recipient's place of work rather than by the recipient's place of residence. As a result, the estimates of the components that are derived from the place-of-work data are adjusted to a place-of-residence basis, and the estimates of these components are presented both by place of work and by place of residence.

The estimates of the components of personal income can be grouped according to the geographic characteristics of the source data.

The estimates of wages and salaries, supplements to wages and salaries, and contributions for government social insurance are mainly derived from source data that are

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Labor Statistics.

reported and recorded by place of work. These data are reported by industry in the state and county in which the employing establishment is located.

The estimates of nonfarm proprietors' income and of contributions for government social insurance by the self-employed are derived from source data that are reported by the tax-filing address of the recipient. This address is usually that of the proprietor's residence; therefore, these data are assumed to be recorded by place of residence. Nevertheless, the estimates of these components--as part of the estimates of earnings--are presented both by place of residence and by place of work. Assuming that nonfarm proprietors who commute to work between states usually file their tax returns from their residence, the estimates of earnings by place of work are more likely to be misstated than the estimates of earnings by place of residence.

The estimates of farm proprietors' income are derived from source data that are reported and recorded by the principal place of production, which is usually the county in which the farm has most of its land and in which most of the work is performed. Because most farm proprietors live on, or near, their land, the place of residence is assumed to be the same as the place of work.

The estimates of rental income of persons, personal dividend income, personal interest income, personal current transfer receipts, and contributions for supplementary medical insurance and for veterans life insurance are derived from source data that are reported and recorded by the place of residence of the income recipient.

Allocation procedures

Using allocation procedures imparts to the state estimates the characteristics of the national estimates that are not reflected in the available state-level source data; for most components of personal income, the state source data are less comprehensive and less reliable than the data that are available for the national estimates./6/ In addition, using these procedures allows the use of state data that are available in source data that are related to, but that do not precisely match, the component being estimated.

Before using allocation procedures, the national estimates of some components of personal income are adjusted for the differences in definitions and classifications between the national estimates and the state estimates. The adjusted national estimates of these components and the national estimates of the other components are used as the "control totals" for the state estimates.

In the allocation procedures, the national control total for each component is allocated to the states in proportion to each state's share of a related series of source data. In many cases the source data are modified or augmented before the allocation by preliminary estimation--for example, by the summation of several items (for example, wages, tips, and pay-in-kind), by the multiplication of two items (for example, average wages times the number of employees) or by interpolation or extrapolation.

Because the allocation procedures use the national control totals for the state estimates, their use yields an additive system in which the state estimates sum to the national estimate.

The allocation procedure used to estimate a component of state personal income is

6. However, the national estimates of most components of wages and salaries and personal current transfer receipts, which together account for about 71 percent of personal income, are based mainly on the sum of source data that are available by state. Therefore, the use of the allocation procedures to prepare the state estimates of these components results in estimates that do not differ greatly from the source data.

$$Y_s = (Y_n)\left(\frac{X_s}{X_n}\right)$$

where Y_s is the estimator (that is, the statistical procedure used to derive an estimate) of the component of personal income for state *s,* where Y_n is the national estimate of the component (which is used as the control total for the state estimates of the component), where X_s is the datum for state *s* from the series of source data related to the component, and where X_n is the national sum of the state data from the series of source data related to the component (X_n = X_s).

In the cases in which the national estimate is calculated as the sum of the state data plus an amount A_n for which state data are unavailable, the allocation procedure may be represented by two equations (which together are mathematically identical to the preceding equation):

$$A_s = (A_n)\left(\frac{X_s}{X_n}\right)$$

$$Y_s = X_s + A_s$$

where A_s is the state estimator of the portion of *Y* for which state data are unavailable. In effect, Y_s is the composite estimator consisting of X_s, the best possible direct estimator (100 percent sample) of the portion of *Y* for which state data are available, plus A_s, the indirect estimator of the portion of *Y* for which state data are unavailable.

For example, the national estimates of wages and salaries for many industries consist of the sum of state data plus a few small adjustments, which taken together (A_n) are allocated to the states in proportion to the state data. The small allocated amount for each state (A_s) is added to the state datum (X_s) to yield the state estimate (Y_s).

Interpolation and extrapolation procedures

Some of the data that are used to estimate components of state personal income are available or adequate only in certain years, which are called benchmark years. In order to derive the estimates of these components for other years, interpolation and extrapolation procedures are used to extend the distribution of the data for the benchmark year or years.

Interpolation procedures are used in the derivation of the estimates for the years between 2 benchmark years. Extrapolation procedures are used in the derivation of the estimates for the years after the most recent benchmark year.

For the details of these procedures, see the "Technical Notes."